THE

Fabrick of the Eye,

And the ſeveral

DISORDERS

Which injure or deſtroy the

SIGHT;

Explained in a

Clear and uſeful Manner, for the Service of thoſe whoſe EYES are weak or impaired.

SHEWING,

1. The true State of the Sight. 2. The Means of preſerving it. 3. The firſt Signs of Weakneſs or Decay. 4. The right Time of uſing Spectacles. And, 5. The Choice of them.

WITH

A plain Account of all the Diſorders of the EYES, and ſafe and effectual Remedies for them: alſo Rules by which thoſe who are about to undergo an Operation, may know whether the Diſorder be curable or not.

The whole from the Experience of many Years.

LONDON:

Printed for J. WAUGH, in Lombard-ſtreet; and M. COOPER, in Pater-noſter-row. M.DCC.LVIII.

(Price One Shilling and Six Pence.)

THE

FABRICK

OF THE

EYE.

CHAP. I.

Of the Eye in general.

I Propoſe to inform thoſe who have good Eyes how they may preſerve them; and ſuch as have them weak or impaired, how to ſtrengthen and reſtore 'em. In order to this, it is neceſſary firſt to acquaint them with the ſtructure of the Eye; that they may know how ſight is performed, and what aſſiſts or injures it. If what I have read and ſeen may convey any additional knowledge on this head, I ſhall be happy to be ſo far uſeful to mankind.

The human Eye is compoſed of nine diſtinct parts: three of theſe are fluids, called HUMOURS; the other ſix are COATS, or Membranes, by which they are encloſed and de-

ſended. Each of theſe parts has its particular name; and by underſtanding theſe we ſhall be able to know diſtinctly the ſeat and nature of every diſeaſe of the Eye; and to judge of the operations, or eaſier methods of relief. Indeed he who will take care of his Eyes in time, will eſcape all the common diſorders of them: he will ſee without viſual glaſſes to extream old Age; and avoid all Operations.

1. The ſtructure of the Eye is this. It's ſurface is form'd by one of the Membranes called the CONJUNCTIVE. This is a white ſmooth ſubſtance; the blood veſſels in it are very numerous, but they are ſo ſmall that they are never ſeen, except when the Eye is diſordered. This Coat does not ſurround the whole globe of the Eye, for it terminates upon the edge of that Membrane, or Coat, which is placed next under it; and is called the HORNY Membrane.

2. The outer Coat, or Conjunctive, has an opening in the front and centre of the Eye: and in this part it is that the horny Membrane comes in ſight, in the natural ſtate of the Eye; for in all other places, it is covered entirely by the Conjunctive, or outer Coat.

This horny Coat has its name from its reſembling horn, in appearance and tranſparency.

rency. And it is thruſt a little forward in the part where it appears in the centre of the Eye. It is only tranſparent in this fore part: at the bottom of the Eye, where the other covers it, it is thick and opake. It has a new name in that part, being called the SCLEROTICK Membrane, and ſome have raſhly thought this a different ſubſtance.

3. Next under the horny Membrane is lodged, the *Uvea*, or grapey Coat, ſo called becauſe it reſembles a black grape. This Coat makes what is called the ſight of the Eye: it is this which is placed in the ſeeming hole in the middle of the globe, within the Circle: this Circle is called the *Iris* of the Eye: and the UVEA being tranſparent, is ſuppoſed by a common obſerver to be a mere vacancy. It is fixed behind to the parts beneath it, and alſo to the edge of the horny Membrane at the opening, or ſight.

This Coat can contract or expand, and this makes the ſight of the Eye appear ſmall, where there is a great deal of light, and large where there is leſs.

4. The next Coat that comes in ſight, is the RETINA, or *Curtain of the Eye*. This is the moſt eſſential organ of ſeeing. It is not at all tranſparent, but objects are repreſented

upon it; and their images paſs no further. It is really a continuation of the nerve of the Eye: which is properly alſo a continuation of the ſubſtance of the brain. The objects repreſented on this Coat are therefore indeed figured on the Brain itſelf, ſo that they are at once perceived and known.

Theſe four Coats which form the whole outer circumference of the Eye, are derived from other parts of the Head; the outermoſt from the Membrane of the Skull, the next, or horny one from the outer covering of the Nerve of the Eye; the *Uvea* from its inner covering, and the Curtain from the Nerve itſelf: but the two remaining Coats are original and peculiar to the Eye, not deduced from other parts.

5. The firſt of theſe, which is the fifth in order, is called the VITREOUS, or GLASSY Coat, becauſe it contains a *humour* of that name: this is very thin and tender; the vitreous humour of the Eye is lodged within it; and there run many fine fibres from its ſides through that humour to keep it in its place. It is happy nature has lodged this Coat ſo deep, for when it is wounded, the humour it contains is deſtroyed.

6. The laſt or innermoſt Coat of all is the

ARACHNOIDE,

ARACHNOIDE, or *Cobweb Membrane*; this is perfectly clear and very delicate.

Theſe are the ſeveral Coats, or ſolid parts of the Eye: they are formed to contain and preſerve the fluid parts called the Humours, which are three; the AQUEOUS, or *Watery*, the VITREOUS, or *Glaſſy*, and the CRYSTALLINE.

1. The WATERY HUMOUR is lodged in the fore-part of the Eye. It is thin and clear, and its quantity is ſo conſiderable, that it ſwells out that part into a roundneſs very favourable to the ſight. The *Uvea* ſwims in this fluid; and it ſurrounds the *glaſſy* humour, and covers the Cryſtalline in the fore-part.

2. The *Glaſſy* Humour, ſo called, becauſe it looks like melted glaſs, is very large in quantity, and is thicker than the *Watery*; it alſo fills out the Eye, and gives it the rounded figure, and it ſupports *the Curtain*.

3. The Cryſtalline Humour of the Eye is the moſt eſſential of the three; it is firm like a jelly, and tranſparent as cryſtal, from which it is named: this is placed between the *Watery* and the *Glaſſy* humours, and is lodged juſt oppoſite to the opening of the Eye, leaning a little forward; it is ſmall in quantity, but peculiar in its form; it is

rounded

rounded behind, and ſomewhat flattened before; and is bedded in the *Glaſſy* humour, and is fixed in its place by many fibres which run like rays from the opening in the centre of the Eye, and which faſten this delicate humour, not only in its bed, but to the Uvea, or grapey Coat.

This is the whole fabrick of the Eye: and this laſt mentioned humour, and the *Curtain* are the two moſt eſſential parts. In what manner ſight is materially performed by them, is very plain: for if the Eye of an Ox be placed at the hole of a ſhutter in a darkened room, and a paper held behind it, the objects in the ſtreet will be painted on that paper. This explains the mechanical part of ſight: how the ſoul is affected by theſe repreſentations is impoſſible to be explained; nor is it any thing to the purpoſe. The reader ſees what the Eye is, and how it performs its office; he will from this view, eaſily underſtand what preſerves, and what impairs it; and how he may avoid danger, or remedy the ill effects of former negligence.

The earlieſt anatomiſts diſſected the Eyes of other animals, and thence argued by the ſuppoſed likeneſs to thoſe of men; for in thoſe

thoſe times it was held ſacrilegious to violate the human frame. How different were the ſucceeding days, in which it is ſaid, one of very celebrated name, (like the painter of the famous crucifix,) did not ſcruple to commit a murther for the ſake of inſtantaneous diſſection. After death is ſurely time enough, but it is from the human Eye alone the ſtructure can be truly learned: for in various animals the conſtruction is very different.

Horſes have the Iris, or Circle of the Eye, blue or grey, hazel or black, as in the human ſpecies: in other creatures it is uſually conſtant. The eyes of fiſh are in general flat, though the flounder and its kind have them rounded like thoſe of land animals. In many inſects each eye is made up of a multitude of ſmall ones. From theſe latter no deduction can be made with regard to the human Eye, becauſe they are very little underſtood; nor are any concluſions to be drawn with certainty from the others; ſince they are in various degrees unlike the human.

CHAP. II.

Of the different kinds of natural ſight.

BEFORE we treat of the diſorders of the Eyes, it is proper to conſider the various manner wherein they perform their office

office in different perſons, while they are free from any diſtemperature: for in this they differ according to their form.

The kinds of natural ſight are three. 1. The perfect. 2. The ſhort-ſighted. And 3. The long-ſighted.

The firſt is the moſt general; for nature is oftner perfect than defective: the ſecond is an imperfection with which people are born; the third comes on with age. They all depend entirely upon the form of the Eye itſelf; and principally of the Cryſtalline humour.

In thoſe who have perfect ſight, the Eye contain this humour in the exact ſhape already named: and it will continue with little alteration through life, if uſed with care. But frequent reading a ſmall print, or great attention to minute objects, will by degrees bring it into the condition of ſhort ſightedneſs; and ſometimes age reduces it to the other extream.

The proofs of a perfect ſight are theſe; the perſon ſees to read beſt at ſeven inches diſtance, and he can ſee very well at five inches and a half. Such perſons require a moderate proportion of light to read; and in this ſtate of the Eye alſo, diſtant objects

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are very distinctly seen. This is the perfection of human sight; and all care should be taken to preserve it.

In short-sighted persons the letters of a book, or other objects, are not seen distinctly unless they be brought very near the Eye: but then they are seen perfectly. At a small distance, things appear confused; and at any considerable space off they are not seen at all. A little quantity of light agrees best with such Eyes. The defect is owing to the Crystalline Humour being too round before; in the part where in those, who have perfect sight, it is a little flatted. There are various degrees of this disorder; some require the object to be brought within two inches of the Eye, or less; some can read at three inches, and some at five or six; the use of concave glasses shews objects to these persons distinctly.

The long-sighted are as far in the opposite extream from the condition of those who have perfect sight: when an object is near, it appears confused, but when removed to a distance they see it distinctly. This defect is owing to the Crystalline Humour being too flat; and it is remedied by the use of spectacles, whose glasses are convex;

they naturally ſee beſt at about twenty inches diſtance; and very well at a yard. Old men are moſt ſubject to this diſeaſe: and thoſe more than others who have made leaſt uſe of their Eyes in their youth. Theſe require a ſtrong light for reading.

As thoſe who have perfect ſight are liable to fall into this ſtate by age; the ſhort-ſighted ſometimes obtain a good and regular ſight by the ſame means. The tendency of age is to flatten the Cryſtalline humour; and this reduces that of the ſhort-ſighted nearer to the condition of perfect nature.

A great article toward the preſerving of perfect ſight to old age, is, to uſe always in reading and working, that moderate proportion of light which is beſt ſuited to the Eye in this natural ſtate. Toward fifty the perſon will find it painful to read with too much or too little light; or by the glare of a candle. The Eyes are then weakened. If he would preſerve them longer in their natural ſtate, he muſt never ſtrain them by either of theſe extreams, but obey what nature ſo well directs.

He will be happy who learns the leſſon earlier; and begins to preſerve his ſight, before the pain reminds him to ſpare his Eyes.

No

No perſon ſhould ever read with a glare of light, nor in the duſk: the frivolous attention to a quarter of an hour of the evening, has coſt many a one the perfect and comfortable uſe of his Eyes many years. The miſchief is done when we do not perceive it; but the latter part of life ſhews the conſequences.

Short-ſighted people ſhould uſe themſelves to a little more light in reading, than is abſolutely neceſſary; and the long-ſighted ſhould accuſtom themſelves to read with a little leſs than they naturally like. This conduct will tend to improve their ſight, the other courſe would be indulging, and in ſome degree encreaſing an imperfection.

CHAP. III.

Of the various form and ſize of the Eye.

WE have deſcribed the general and natural ſtate of the Eye; from which however the whole ſometimes varies a little, as well as the Cryſtalline humour in particular. Some perſons have large and protuberant Eyes, others have them ſmaller and ſet down low in the head. A moderate ſize, and a middle degree of prominence is beſt; but of the two extreams, ſmall and deep ſet Eyes are moſt deſireable. They have

the cleareſt ſight; and are moſt out of the way of injuries and accidents. Ten people with large prominent Eyes have diſorders in them, for one that has them ſmaller and deeper: for they are not only moſt in the way of blows or hurts; but they are moſt expoſed to the air, and eaſieſt affected, for that reaſon, with colds and rheums.

Thoſe who have the pupil or opening of the Eye largeſt ſee the beſt, and with the leaſt light, if the other parts be perfect: but the power of contracting this opening, is eſſential to the healthy ſtate of the Eye. In perſons who have entirely loſt their ſight, the opening continues always the ſame; and therefore thoſe who think themſelves in danger, ſhould obſerve whether the Eye loſes or retains this power of contraction and dilatation.

The beſt method of trying is to ſhut the Eyes, and then rub the upper part of the Lid of one of them with the thumb. After this let the Eye be opened, and look into a glaſs placed againſt the light. Obſerve to what degree the pupil has its power of contracting: and by this it will be eaſy to judge of the perfection or decay of the ſight: for this attends conſtantly and regularly on that motion.

When

When one Eye has been thus examined, let the other be treated in the ſame manner; and obſerve whether there be any difference in the two, with regard to the contracting, as they are expoſed to the light. In moſt caſes the defect of ſight begins in one of the Eyes; and it will be this way known whether it be ſo, and in what degree.

Let no one who thinks his ſight in danger, be afraid to bring his Eyes to this trial. There is no pain in it; nor does he need any hand but his own. Let him not be afraid to find them worſe than he thought they were, which is indeed often the caſe, for it is beſt it ſhould be known: remedies are not impoſſible.

The power of electricity has been tried in a late inſtance, and proves very amazing. Mr. Lookup, of *Catharine-ſtreet*, has a daughter whoſe ſight is abſolutely loſt. In this lady's Eyes, the pupil was conſtantly and immoveably dilated to the extream, ſo that no Iris was ſeen; the Eyes appearing ſolely black. On the repeated application of the electrical machine, the pupil recovered its power of contraction; the opening became ſmaller, and a fair grey Iris appeared. The Eyes appeared changed from black to grey.

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The caſe was too deſperate, and of too long continuance for abſolute relief: but this effect of electricity was very ſtrange. There is reaſon to believe, in defects leſs confirm'd, it may perform a cure.

When the pupil of the Eye is extreamly contracted, and it has not the power of dilatation, blindneſs is the conſequence; as much as in the other extream. The ſame attention ſhould be uſed to diſcover it, and the ſame timely care taken to remove the obſtacle.

When a defect of ſight is occaſioned by either of theſe cauſes, the diſorder is properly a palſy of that part. The Eye has its muſcles, and they are as liable as thoſe of any other portion of the body to this diſtemperature. When the caſe is an exceſſive dilatation of the pupil, it is a palſy of the circular muſcle; and when it is a contraction, it is a palſy of the radial muſcle: this is not uſeleſs ſpeculation; it leads to a cure. The great care is to diſcover the diſeaſe in time, for then it is eaſy to find a remedy: but when it is advanced to a great degree that is impoſſible.

CHAP. IV.

Of the loſs of ſight by accidents.

THE degree, proportion, or quantity of light, to be received by the Eyes, is an article of vaſt conſideration in the preſerving of them: and we have ſhewn that a moderate quantity alone is proper for them when employed in reading or working. Too little ſtrains the ſight, and too much dazzles the Eyes. But the effect is very different in theſe ſeveral degrees, when brought to the extream. Too little light never did the Eyes any harm, unleſs they were employed in examining ſmall objects: but too much has by its own power deſtroyed the ſight. In countries where criminals are kept in abſolute dungeons, they ſee as well as ever when brought again out of that darkneſs; but a ſudden, violent blaze of light may at any time deſtroy the ſight irrecoverably. It is thus perſons are ſtruck blind by lightning: the body of the flame, which is bright beyond imagination, coming juſt before their eyes. And thus people have been ſtruck blind by looking too near into the extream fire, where metals are melted. The looking full upon the focus of a great burning-glaſs, while performing its operations,

operations, may have the ſame effect ; and we had an inſtance of an apothecary's ſervant, ſtruck blind by throwing ſalt-petre into a red hot crucible, in which there was a ſmall piece of charcoal burning. Even the travelling in ſnow has had the ſame effect : and the looking on ſmooth pavements of great extent, when the ſun ſhines upon them, will hurt the Eyes extremely.

Practical cautions may be learned from all theſe incidents. The great rule is this, never to bring the Eyes haſtily and careleſly out of a leſs degree of light into a greater ; nor ever to expoſe them to too much. I am not permitted to mention names, but I can give inſtances of what caſes have fallen under my obſervation in this quarter of the town, wherein theſe accidents brought on very bad conſequences ; which were relieved by caution, without medicines.

A lady from the country, coming to reſide in St. *James's-ſquare*, was afflicted with a pain in her Eyes, and a decay of ſight. She told me ſhe could not look upon the ſtones, as the ſun ſhone upon them, without great pain. This, which ſhe ſuppoſed to be a ſymptom of her diſorder, was the real cauſe of it : her Eyes, which had been accuſtomed

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to the green of her graſs-walks in the garden, and the paſture-grounds before her houſe, could not bear this violent and unnatural blaze of light, from the reflection of the flat ſtones. I adviſed a number of ſmall orange trees to be ſet in the windows, whoſe tops hid the pavement, and came in a line with the graſs, the water, and the buſh, in the middle of the baſon. The lady is well without any medicine; and ſhe was on the verge of little leſs than blindneſs.

A gentleman of the law had his lodgings in *Pall-mall*, on the north ſide: his front windows were expoſed to the full noon ſun, and his back room having no opening but into a ſmall cloſe yard, with forty foot brick walls, was very dark. He wrote in the back room, and uſed to come into that in front to breakfaſt. His ſight grew weak; and he had conſtant pain in the balls of the Eyes. He uſed viſual glaſſes, and he ſpoke with oculiſts; equally in vain. The former incident had happily put the occaſion into my thoughts, and he was ſoon convinced, that the coming ſuddenly out of his duſky ſtudy, into the full blaze of ſunſhine, and that very often in the day, had been the real cauſe of his diſorder. New lodgings, and forbearing to write by candle-light, have proved a perfect cure.

Blindneſs, or at leaſt miſerable weakneſſes of ſight, are brought on by theſe unſuſpected cauſes. Thoſe eſpecially, who have Eyes diſpoſed to be weak, ſhould attend to this, ſince the prevention is eaſy, but the cure is extreamly difficult; and often utterly impracticable.

We ſee therefore, that excluſive of natural imperfections, and of illneſſes, or abſolute diſeaſes of the Eyes, the ſight may be greatly injured or impaired by an injudicious management of it in the common courſe of life; and upon this ſhould be founded the following everlaſting rules for its preſervation. 1. Never to ſit in abſolute gloom, or in a blaze of light; much leſs to go from one into the other. A houſe ſituated north and ſouth, is therefore wrong for any who are tender in their ſight; and thoſe who are ſenſible of the leaſt diſorder in it, never ſhould live in ſuch a ſituation. 2. To avoid ſmall prints in reading; and all attention to minute objects. It is in vain to think of aſſiſting the ſight with glaſſes: they repreſent the objects plainer, but they commit a kind of violence upon the Eye, and always hurt weak ones. 3. Never to read in the duſk: and when the Eyes are at all diſordered, not

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by candle-light. 4. Never to look into a bright fire. 5. To avoid all glaring objects, eſpecially in a morning at firſt waking: therefore that the bed-chamber be never ſo ſituated, that the ſun ſhines into it at that time: that there be no red, nor too much white in it; and that the degree of light be moderate. Thoſe who have weak Eyes will find great advantage in green furniture in that room, and in admitting the light gradually to their Eyes at the time of waking; it is thus nature provides for all her creatures: the day-light comes on by very ſlow degrees; and the firſt object is univerſal green.

CHAP. V.

Of the uſe of Spectacles.

WHATSOEVER care be taken of the Eyes, the decays of nature are unavoidable; and weakneſs of ſight will come on with years, though not ſo ſoon by the mere advance of life alone, as by the ſame cauſe with a careleſs conduct.

As the ſight grows weak, objects are not ſeen diſtinctly; the letters of a book appear confuſed, and it becomes difficult, and at length impoſſible, for the perſon to read. The ſame difficulty ariſes in examining all ſmall

objects. This decay comes on gradually, and ſlowly: glaſſes help it; and the moſt familiar method is by ſpectacles; but it has been a great while a doubt, and ſtill continues ſo, at what time they ſhould firſt be uſed: whether on the ſlighteſt approach of the decay, or not till they are abſolutely neceſſary.

At whatever time they are begun to be uſed, they ſhould from thence, be made univerſal. We have obſerved, that the recourſe to glaſſes on particular occaſions, ſtrains the Eyes; and it is by the change they introduce for the time in the appearance of objects. Therefore, when they are once uſed, they ſhould always be uſed; and no ſhock ſhould be offered to the Eyes, by repreſenting things to them, at one time in one manner, and the next moment in another. They bear this as ill as the ſudden removal out of the dark into the light. The practical advice is this: that whenever a perſon begins to put on ſpectacles, he ſhould uſe them for every thing. With regard to that eſſential queſtion, the time when they ſhould be firſt uſed, I am convinced by long obſervation, that it never ſhould be, till they are abſolutely wanted. When the

ſight

ſight is growing weak, it will take its courſe; and the uſe of ſpectacles will only bring on the decay ſooner. There never was a greater error, than uſing them to preſerve the ſight. A perſon who continues to read without them, at the time when his ſight begins to grow weak, will be able to read without them much longer than one in the ſame condition, who uſes them by way of preſervation. This is an abſolute and certain fact, and it takes away all poſſible controverſy.

Due care as we have directed in managing the Eyes, never to face a ſtrong light, nor ever read in a weak one, or by candles, avoiding glaring objects, and looking very much on green, will keep the ſight a great while fit for ſervice, without aſſiſtance, even after it has begun to ſhew ſigns of decay: whereas the uſe of ſpectacles will make the perſon much leſs able to ſee without them in a very ſhort time.

We ſpeak here of the abſolute decay from nature, not of what is occaſioned by diſorders: that we ſhall explain hereafter. But in this caſe, the true practice is to keep from ſpectacles ſo long as the perſon can read without them; and when they are neceſſary,

ceſſary, let the choice be made of a pair, which are neither of very ſmall, nor very great power. An honeſt optician will ſelect ſuch, being deſired; and they will ſerve the purpoſe a great while.

Many begin with thoſe of ſmall power, and change frequently for ſuch as have more: but this is a very ill practice. In a little time ſuch a perſon, will find no ſpectacles whatſoever, will ſerve him well.

For the ſame reaſon, when any one uſes ſpectacles, let him never put on any but his own. The taking others occaſionally, is like the frequent changing them at the ſhop: and both are of the ſame conſequence, with that ill practice of ſometimes uſing them, and ſometimes letting them alone. The ſight is diſturbed by this variety; and the Eye is hurt by ſeeing objects one moment under one repreſentation, and preſently after under another. All diſturbance and irregularity is hurtful, and a great deal depends upon keeping the ſight uniform, as well in the degree of ſtrength, as of light.

Spectacles are vaſtly preferable to reading-glaſſes, becauſe they employ both the Eyes together; the other naturally only one. The repreſentation of objects, ſeen by both, and

by

by one Eye only, is extreamly defferent. This they know who have loſt an Eye, and any may know by ſhutting one for a time. The cuſtom therefore, of reading with one Eye, is a diſturbance of the ſight, and is hurtful to it, as all other things are which render it irregular. It is for this reaſon, more than any other, that the uſe of microſcopes hurts the Eyes.

Spectacles of cryſtal are very bad for the ſight; for the natural brightneſs of that ſtone is injurious to a weak Eye. Some, on the oppoſite extream, uſe green glaſs; but this miſrepreſents all objects, and has a glare that renders it yet more hurtful. The beſt glaſs for them, is that which is of a moderate degree of fineneſs, between the white and green: and they did well, who introduced the common glaſs of windows for this purpoſe.

Beſide the reaſons named already, there is one yet more important in favour of the uſe of ſuch ſpectacles as theſe, and only of one kind, or, properly ſpeaking, of only one pair: this is, that the Eye will ſometimes recover itſelf under ſuch regular management.

By what we have ſaid of the nature of the Eye, and of the material cauſe of that de-

fect

fect of ſight, which age brings on, this will be eaſily underſtood. The cryſtalline humour muſt have a certain degree of roundneſs for perfect ſight; and this it looſes, by ſlow degrees, at the approach of age. The cryſtalline humour becoming ſomewhat too flat, the perſon cannot read without convex glaſſes, which remedy that defect, in a manner perfectly mechanical: if he uſe various kinds of theſe, the cryſtalline is often diſturbed, by the paſſage of rays variouſly refracted. But if he will be conſtant to one pair, the Eyes will, ſometimes, as we have ſaid, recover themſelves: that is, this cryſtalline humour will regain its natural roundneſs, and the perſon will be able, after many years uſe of ſpectacles, to ſee without them. There is at preſent an inſtance before me of this truth. Mr. *George Holmes*. And, I believe, he will not have occaſion ever to uſe them again.

CHAP. VI.

Of diſorders of the Eyes which weaken the ſight.

HITHERTO we have conſidered only natural infirmities and decays of ſight: there remain many others, which are occaſioned by diſorders of the Eyes: the more

more terrible of theſe require the hand of an experienced and judicious operator ; but in the far greater part, the patient may be inſtructed to take care of himſelf : and it will be better to keep out of their hands, whoſe intereſt it often is to enflame diſorders, that they may afterwards obtain more glory, and more profit, by curing them.

Among the leſſer maladies of the Eyes, the moſt common is a redundance of water, or of a watery humour : this always diſturbs and impairs the ſight. When the Eye is full of water, letters appear confuſed, and no ſmall object is ſeen diſtinctly. In this caſe it is uſual to have recourſe to ſpectacles : but accurate obſervation ſhews, that it is only the glaſs, not the form, that is neceſſary.

When it is the extream moiſture of the ball of the Eye alone, which makes objects appear confuſed, the placing a piece of thick clear glaſs between the Eye, and the thing to be ſeen, renders it diſtinct again. Philoſophy may puzzle at an explanation of this, but it is enough to know it is a fact. Therefore, in theſe caſes, let a pair of ſpectacles be made of plain thick coach-window glaſs, without any convexity ; and let the perſon read with theſe, and at the ſame time,

uſe the following medicine; to dry up the abundant moiſture, and remove the cauſe. Grind to a fine powder, a dram of the white troches of rhazes, and ten grains of white vitriol; mix by degrees with theſe, ſix ounces of plantain-water. Waſh the Eyes night and morning with this.

Avoid much reading, and never examine any thing but with a moderate light. Never face a ſtrong bright fire; and when it is neceſſary to come into the ſunſhine, always keep the Eyes half ſhut. Never look into the ſky, nor at the flame of a candle, nor read, write, or work, by candle-light.

It will be ſoon ſeen whether the Eyes be rendered dryer by this practice. If they be, the perſon will ſoon be cured; if not, the next reſource is ſome drain for the humour. Three doſes of moderate phyſick ſhould be taken, each at two days diſtance from the other. If this does not ſucceed, a bliſter, ſeton, or iſſue muſt be the next attempt: but bliſters inflame, and iſſues diſcharge irregularly. I have always found a ſeton in the neck the moſt effectual. It is near the part, and the diſcharge is conſiderable. The trouble of it is more than the pain: but if it were greater, the ſight is of ſo much conſequence,

that

that people ſhould not think much of it. All this time the Eye-water, before directed, ſhould be uſed. There are very few caſes this method will not effectually cure : and if only ſuch glaſſes as are here directed have been uſed, the ſight will be perfect again, as ſoon as the cure is performed ; and there will be no need of ſpectacles. But if the perſon has, idly, inſtead of plain glaſſes, uſed ſpectacles, he muſt continue them, even when the cure is finiſh'd : for the Eyes having been accuſtomed to theſe will not be able to ſee diſtinctly without them.

When a decay or weakneſs of ſight comes on earlier than could reaſonably be expected, and without any diſeaſe or other apparent cauſe, it ſometimes will be in the power of medicine to relieve it : at leaſt there will be no ill attending the uſe of the following remedy.

Slip off two ounces of the leaves of roſemary, put them whole into a bottle, with a pint of brandy, and ſhake it once a day ; let this ſtand three days, then ſtrain it off, and let the clear tincture run through paper: mix a tea ſpoonful of this, with four tea ſpoonfuls of plantain-water : make it warm, and waſh the inſide of the Eye with it, every

night, going to bed; moving about the Eye-lids, that ſome of it may get perfectly in between the lid and the Eye. By degrees put leſs and leſs water to the tincture, till at length, a tea ſpoonful of each be mixed for uſe: and let this be continued a long time, waſhing the Eye with ſome of it every night.

The decay of ſight, in theſe caſes, is owing to the cryſtalline's growing too flat; and this is often occaſioned by the weakneſs, and coldneſs of the part. This tincture will remove the cauſe, and will often reſtore that part of the Eye, to its natural form; and the ſight will be perfect.

CHAP. VII.

Of inflammations in the Eyes.

INflammations of the Eyes are often the effect of colds, and this is their leaſt dangerous ſtate; they may ariſe from various other cauſes, and among the reſt from venereal diſorders. They are often, in that caſe, the moſt deſperate of all.

The inflammation ſhews itſelf by the ſwelling of the blood-veſſels in the white of the Eye: which become red, and the Eye is ſaid to be blood-ſhot. Afterwards the whole

whole white of the Eye will be in a manner red and inflamed. Sometimes this diſorder is ſlight and trifling; ſometimes very painful and dangerous: the inflammation in ſome caſes, proceeds ſo violently, that it is ſcarce poſſible to preſerve the ſight.

Every diſorder of the Eyes, ſhould be attended to in time: for the leaſt will ſometimes, with neglect, grow to the condition of the greateſt.

The inflammations of the Eyes are of two kinds; ſome attended with a running of water or matter, others altogether dry. This diſtinction is the firſt thing to be regarded, becauſe upon this depends the proper method of cure.

In the inflammations attended with moiſture, the pain is greateſt; for the ſharpneſs of this humour, often inflames the Eye-lids, and ſometimes ulcerates even the outer coat of the Eye. Old people and children are moſt ſubject to this complaint; and perſons from twenty to five and forty, to the other.

Remedies are very neceſſary in each caſe; but they muſt be ſelected with judgment, and adminiſtred with care: nothing is ſo little underſtood as the medicines for the Eyes; and thoſe which are unſkilfully applied often encreaſe the diſeaſe.

IN DRY INFLAMMATIONS OF THE EYES, bleeding is the firſt thing to be done; and it often performs a cure alone: but it is better to add to its efficacy, by the following eaſy application. Mix a quarter of a pint of plantain-water, with two ſpoonfuls of brandy: put to it fifteen grains of levigated tutty. Waſh the inner part of the Eye with this, four or five times a day.

If this does not cure, let the bleeding be repeated the third morning; and the day after, let a gentle purge be taken. Continue the uſe of the Eye-water; and at night bind gently over the Eyes a linnen, ſix or eight times doubled, and moiſtened with red wine, in which a few red roſe-buds have been boiled. This method, will in all caſes, where there are no particular circumſtances, perform a cure.

IN INFLAMMATIONS WITH MOISTURE, more is to be conſidered; becauſe more ſymptoms occur.

Bleeding is neceſſary, and it muſt be repeated occaſionally.

Diſſolve three grains of ſalt of lead, in a quarter of a pint of plantain-water; and waſh the Eye with this four or five times a day.

If the complaint do not grow better, uſe the following. Grind to a fine powder, half a dram of roach alum; mix this with the white of a new laid egg, and beat them up very well together, till they are mixed into a curd. Spread this upon a doubled linnen rag, and lay it over the Eye. Let it lye on two hours. Let this be repeated as there is occaſion; and if the diſorder do not give way to theſe remedies, a ſeton muſt be made in the neck.

When A THICK HUMOUR faſtens the Eye-lids together in a morning, and the corner of the Eye is ſore, and the whole globe troubled with an itching; the beſt remedy is ointment of tutty. A piece of this, as big as the head of the largeſt pin, muſt be put into the corner of the Eye at night, going to bed; and three times a day the following water muſt be uſed. Pick off an ounce of leaves of *vervain*, freſh gathered. Pour upon them a pint of boiling water; let it ſtand till cold, and then ſtrain it off through a ſieve; let it ſettle to be quite clear; and add to it four ſpoonfuls of brandy; let the Eye be waſhed with this every two or three hours. The virtues of vervain are not ſufficiently known.

CHAP.

CHAP. VIII.

Of inflammations of the Eyes attended with other circumſtances.

IN ſome inflammations the Eyes always ſeem to be filled with dirt, and the pain is exceſſive. This ariſes from a thick humour, which is ſecreted within the Eye-lid, which covers it at firſt like a jelly, and afterwards hardens into little lumps of a kind of ſolid matter. Theſe hurt the Eye, and feel like dirt in it.

Rub to powder ſix grains of levigated lapis calaminaris; add to it ſix grains of ſugar of lead, and eight grains of crude ſal armoniac. When theſe are very fine, mix them with half a pint of plantain-water, and let the Eye be waſhed with this four or five times a day.

When the Eyes are inflamed, and red only at the corners, or for ſome little way thence toward the centre of the Eye, but the upper and lower part are not affected, the cure is generally eaſy: but it muſt be taken in time; for this diſeaſe, if neglected, is very apt to degenerate into a worſe. The following Eye-water will uſually cure it in a few days time, when only the corners are

ſwelled

ſwelled and ſore. Rub to a fine powder half a dram of white vitriol: mix it with a ſcruple of the powder of florentine iris, and put them into a bottle, with a pint and four ounces of plantain-water; ſhake the whole together, and waſh the Eyes twice or three times a day.

If a pimple riſe upon the globe of the Eye, it adds greatly to the pain of theſe inflammations. The common methods muſt be uſed, and the patient muſt be kept carefully from facing any ſtrong light. When matter is form'd in the pimple, which will be in ſome time, it muſt be let out by opening the top of it with a lancet; and then the Eye muſt be waſhed with the vervain Eye-water, till it is perfectly well.

Sometimes five or ſix little ſores will be form'd in different parts of the Eye, which will become ulcers, and will be not only very painful, but ſometimes will leave ſcars that hurt the ſight. This requires a more powerful remedy than the former.

Tie a piece of camphire in a rag, and put it into a bottle, with a pint of plantain-water. When it has been two days in the water, that will be fit to uſe. Waſh the

Eye with it four or five times a day; and then uſe the following.

Rub to fine powder, a ſcruple of the lapis divinus; then add a quarter of an ounce of ſugar candy; and diſſolve the whole in a pint of plantain-water: add two ſpoonfuls of brandy, and waſh the Eye with this till the little ulcers are cleanſed and healed: then bathe the Eye three times a day with warm milk.

Sometimes the whole Eye, and Eye-lids, and even the noſe, will be ſwelled and inflamed, ſoon after the firſt appearance of what is called the blood-ſhot. This requires immediate and plentiful bleeding.

Mix plantain-water, half a pint, with two ſpoonfuls of brandy, and frequently bathe all the parts with this warm: at night let the following be laid on alſo warm. Boil ſome marſhmallow root ſlic'd thin, in common water, till it is quite ſoft; maſh it with a little of the water, and a piece of crumb of bread, and lay on ſome of this all over where the inflammation goes.

The bleeding muſt be repeated at times; and a purge taken every other day. If this does not ſucceed, a ſeton muſt be made in the neck. No care is too much in this caſe,

for

for the humour is ſo ſharp, that the ſight is in great danger ; and even the little ſores, made by it on the cheeks and noſe, leave ſcars that never wear out.

CHAP. IX.

Of ſwelling of the Eyes.

SOmetimes after a blow, or from the effect of a violent cold, the body of the Eye will ſwell out, ſo that the ſight will appear ſunk in form of a hole in the middle. This is attended with great pain and danger, unleſs proper remedies be uſed, the white of the Eye will riſe out to near half an inch in thickneſs ; and matter will be form'd by which the Eye will be deſtroyed. Whether a blow, or a fever, or whatever be the cauſe, bleeding is immediately neceſſary ; and it muſt be repeated two or three times. Sweating the part is alſo very proper ; and for this purpoſe the beſt thing is plantain-water with a little brandy. This muſt be warmed, and cloths wetted in it muſt be applied frequently to the Eye, to keep all that part of the face in a gentle dew. A briſk purge, unleſs the fever render this improper, ſhould be given every other day.

It will be ſoon ſeen whether the ſwelling and inflammation abates. If they do not, there is danger of matter being form'd, which probably will deſtroy the ſight.

To prevent this uſe the following. Boil red roſes in red port wine, and add a few leaves of roſemary; when the wine is very ſtrong of the ingredients, dip pieces of linnen many times doubl'd into it; and apply them to the Eye on the outſide, binding them gently on without preſſing. Let this be repeated once in a quarter of an hour; and with the effect of purges and bleeding, it will probably ſucceed. If not, the ſurgeon ſhould be called in, for there will be need of a very ſkilful hand, and great knowledge, to prevent the moſt extream miſchief.

CHAP. X.

Of venereal diſorders of the Eyes.

NO inflammation or diſorder of the Eyes is more terrible than that which proceeds from a venereal taint; nor does any threaten the ſight more immediately. Many Eyes have been loſt by this dreadful diſeaſe, and yet the preſervation of them with due care is not difficult. The common appearance in the Eye is a ſwelling and thickning of

of the outer coat, as in the laſt inſtance; and a great diſcharge of matter from the corner; or ſometimes from the whole Eye.

The thickened coat of the Eye becomes hard and fleſhy, and the matter ſtains the linnen cloths uſed about it, in the ſame manner as the running which attends that diſeaſe in its moſt common appearance. There requires in this caſe the moſt immediate care. A ſeton ſhould be inſtantly made in the neck; and the Eye muſt be waſhed five or ſix times a day with the following mixture. Pour a pint of water upon two ounces of ſarſaparilla root. Let it ſtand till cold, then ſtrain it off clear, and add two ſpoonfuls of brandy. This muſt be warmed every time it is uſed; and between the times of waſhing with this, let there be thick doubled linnen cloths, dip'd in the roſe-wine before directed, laid on the Eye.

If the inflammation be violent the perſon muſt be blooded. And during the uſe of theſe applications to the Eye, the uſual medicines for the diſeaſe itſelf are to be given with the greateſt care and punctuality. Thus the Eye will be reſtored to its natural condition; but if any time be loſt at firſt, or any thing

neglected

neglected afterwards, there will be no recovering ſuch omiſſion. The Eyes will abſolutely periſh.

CHAP. XI.

Of diſorders of the Eyes following the ſmall-pox.

MANY diſorders of the Eyes are the conſequences of this diſeaſe in particular perſons; nor is the method by inoculation a ſecurity. Though in general milder kinds occaſion leſs of the miſchief; and the mildeſt are uſually given by that method.

In the courſe of this diſeaſe it is frequent and natural that the Eye-lids ſwell, with the reſt of the face: they become inflamed, and they diſcharge a matter of a clammy nature, which cloſes their edges; and the perſon, in the common courſe of things, is blind ſome days, if care be not taken to prevent it. Sometimes no harm ariſes from this, but in many caſes the matter contained between the Eye-lids and the Eyes grows ſharp and corroſive, and eats into the ſubſtance of the Eye, making ſmall ulcers. Theſe are found on the edges of the Eye-lids as well as in the Eye, and they continue very troubleſome: not healing with the reſt of the puſtules.

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The humour kept till it is acrid in the Eyes, while they are ſhut, ſometimes makes its way ſo far as to cauſe that troubleſome and miſchievous weeping at a corner of the Eye, which is called a fiſtula lachrymalis. Sometimes a pock takes place in the very ſight of the Eye; and ſome perſons who have eſcaped all theſe dangers, get inflammations and other troubleſome diſorders in the Eyes, ſoon after their firſt going out. This happens after inoculation, more frequently than after the ſmall-pox in the natural way: for having been leſs in danger, people are leſs careful.

To eſcape this, the firſt caution is, not to be in haſte to get abroad: let the perſon be accuſtomed to the air in the houſe before going out; and then only let the airing be in the middle of the day.

To guard againſt the others, let the Eyes be carefully waſhed and kept clean during the courſe of the diſtemper. If the ſymptoms be moderate, warm milk and water is better than any thing for waſhing them; if the diſeaſe be more violent, uſe the following.

Pour a pint of boiling water upon two ounces of marſhmallow roots; and when cold,

cold, ſtrain it off, and add two ſpoonfuls of brandy. Waſh the Eyes at times inſide and out with this; and frequently draw a feather wetted in the liquor, between the Eye-lids, to prevent their being faſtened together.

When an abſceſs is form'd, the hand of the ſurgeon is neceſſary. In all caſes where that is not required, cleanlineſs is the firſt article towards a cure; and the next is caution. The patient muſt defend the Eye from all great lights; and the utmoſt care muſt be taken to avoid catching cold: for this never fails to bring on an inflammation in the tender part; which is the ſymptom moſt of all to be feared. It will eaſily be found whether the ſymptoms grow aggravated, or become more mild; and if the latter be the caſe, let not the patient complain that the cure proceeds too ſlowly. The Eye is a very tender part, and nothing can be more dangerous than to inflame it by violent, or too ſharp applications.

CHAP. XII.

Of the nature of a cataract.

WE have gone through the conſiderations of the more uſual, and leſs dreadful diſorders of the Eye, but there remain

main two yet to be treated of, much more deplorable in their nature and conſequences; and though familiarly known by name, yet very little underſtood: theſe are THE CATARACT, and GUTTA SERENA; both deſtructive of the ſight; and both, when confirm'd, beyond the reach of remedy. It may be uſeful, and will certainly be ſatisfactory, to perſons afflicted with theſe complaints, to know their nature truly: this we propoſe to lay before them diſtinctly and plainly.

The name cataract is given to various diſorders of the Eye; but that which is properly call'd ſo, is a diſtemper of the cryſtalline humour; which looſes its proper nature: diſſolving firſt into a ſoft thin matter, and afterwards hardning again, ſo as to be totally incapable of its office: and the perſon then becomes entirely blind.

The cataract is oftner cauſed by external injuries, than any other way. A blow upon the Eye will looſen the cryſtalline from its place: it then appears whitiſh and duſky; and the whole miſchief follows. A violent ſtroke on the forehead, or a fall upon the head, may in the ſame manner looſen it; and the ſame conſequences follow: it grows whitiſh,

and a cataract is formed. If a needle, or any other ſharp inſtrument, pierce ſo deep into the Eye as to wound the cryſtalline humour, that will alſo occaſion a cataract; for it then looſes its natural colour and conſiſtence, and becomes opake.

In all theſe caſes the cataract is form'd very ſuddenly. When it proceeds from an internal cauſe it comes on more ſlowly; but with equal certainty.

The firſt ſigns of a cataract perceived by the patient, are common to many other diſorders of the Eyes; but there ſoon follow ſuch as are more plain; ſuch as are peculiar to this, and ſhew with certainty what is the caſe. The firſt appearance is that common ſymptom of flies and motes dancing before the ſight: but after this, the diſtemper'd Eye becomes ſhort-ſighted. If the other Eye be ſhut, objects require to be brought nearer than uſual to this; and the power of ſeeing diminiſhes: till at length only a little light makes its way into the Eye, and objects cannot be diſtinguiſh'd.

During the firſt ſtages of this complaint, there is nothing to be ſeen by looking into the Eye; but when it is advanced ſo far, the eſſential cauſe is viſible: deep in the orb there appears an opake ſpeck of a white, or yellow-

yellowiſh white colour. This is the cryſtalline humour of the Eye, which has loſt its tranſparence: frequently alſo it loſes its form. Inſtead of its original circular ſhape, it will become triangular; and not only its ſubſtance is thus rendered dark and thick, but its very ſurface will be often drawn up into wrinkles.

We have given the ſymptoms by which the patient may perceive this diſorder coming on; and theſe laſt are the indubitable proofs that it is confirm'd. Thoſe who are ſo unhappy as to have cataracts, will be able thus certainly to know their caſe: and that is all we can propoſe to them. It is not a complaint wherein medicines can avail. The hand of the operator is the only hope, and too often its efforts are ineffectual.

CHAP. XIII.

Of a ſhaking cataract.

THIS is a peculiar, and very deplorable ſtate of the Eye: in which, not only the ſight is loſt irrecoverably, but the ſhape of the globe is deform'd, and appears diſguſtful.

The cryſtalline humour is the ſeat of this diſorder, as of the other: and it becomes at once enlarg'd, looſe, and hard; as well as

opake. The name of a ſhaking cataract is given it becauſe the cryſtalline being looſe, ſhakes from ſide to ſide of the Eye as it is moved: and at length it breaks the ſmall hold, which kept it in the hinder part of the Eye, and is thrown forward to the front. This is a diſorder beyond all hope of cure; but the pain upon any motion, and the uneaſineſs it gives to all who look upon the perſon, together with the eaſe of the operation by which it may be drawn out, unite in recommending that courſe.

Though we are accuſtom'd to conſider the Eye as a very tender and ſenſible part, there is in reality little feeling in it. The operations of the ſurgeon give very little pain: I wiſh we were not oblig'd, by truth, to ſay alſo, they generally do little ſervice.

CHAP. XIV.

Of a Glaucoma.

THE diſtemper of the Eye properly called a glaucoma, is a diſorder of the cryſtalline; attended with, or indeed more juſtly ſpeaking, occaſioned by, a palſy in the nerves of the Eye.

The firſt ſymptoms of it are very diſtinct and plain, and they ſhould be attended to with

with care, becauſe at that time medicines will afford great relief, though afterwards they are vain.

The firſt ſymptom of this diſorder is a miſt before the Eyes. This is ſeen principally in a morning at firſt riſing; and at the time when candles are firſt lighted in an evening. It is not of the nature of thoſe ſpots or films which ſeem to float before the Eyes in the begining of a cataract; or of thoſe duſky atoms which diſturb the ſight from leſſer occaſions: but it is a continued vapour as it were, which makes the Eyes ſeem weak, and the ſight is difficult. As the diſorder advances in ſtrength, this vapour becomes more thick; and the ſight from the middle of the pupil is loſt: but about the edges there is ſtill ſome power of ſeeing, though painfully and imperfectly. This is the ſecond ſtage of the glaucoma. In the firſt nothing is to be diſcover'd on examining the Eye; but in this the cryſtalline begins to change colour. After that, in the third ſtage, wherein the diſeaſe is to be conſidered as altogether confirm'd, the perſon can diſtinguiſh light from darkneſs, but can ſee no object: and the cryſtalline humour becomes of a blueiſh green colour. The pupil from the beginning is dilated; and the patient feels violent

pains,

pains, not only in the globe of the Eye, but in the temple.

The cauſes of this diſorder are various. It will ſometimes come on gradually, without any apparent occaſion; ſometimes more haſtily, from accidents: and of theſe, the principal, and moſt uſual, is a ſudden and violent flaſh of light. When it is owing to this cauſe, both Eyes are uſually affected together; when it comes on more gradually, one Eye is commonly attacked firſt: but the diſorder when confirm'd in the one, generally ſeizes on the other; and in the common courſe of things, both are loſt.

In this laſt ſtage of the diſeaſe, nothing is to be expected from medicine, or indeed from the hand of the operator. Therefore the more regard is to be had to the firſt ſymptoms. In the caſe of a continued and thick miſt, like a cloud, or ſmoak, before the Eyes, the following medicines have performed an abſolute cure; reſtoring the ſight, and preventing the glaucoma which certainly would have followed. Cut into thin ſlices a quarter of a pound of maſterwort root freſh dug up; put it into a pint and half of brandy; and add of the tops of origainum, and flowers of roſemary, of each an ounce; of cardamom ſeeds hull'd,

half

half an ounce. Let theſe ſtand together a week, ſhaking the bottle every day. Then ſtrain off the liquor, and filter it through paper. Take a tea ſpoonful of this three times a day, in a ſmall glaſs of wine and water: continue this without intermiſſion; and all the time keep the Eyes in ſome degree ſhaded from the light. Let a hat be flap'd over them when in the open air; when the perſon comes into a ſtronger light than uſual, let him open them but little; and let him never read a ſmall print, examine minute objects, or look at bright or diſtant ones.

Let him uſe alſo the following Eye-water. Strip off ſome leaves of eyebright carefully dry'd; pour upon half an ounce of theſe, a pint of boiling water: let it ſtand till cold, then ſtrain it off, and add to it one ſpoonful of brandy. Let the Eyes be carefully waſhed with this night and morning.

By this method, if the diſeaſe be not too far advanced before it is regarded, there will be ſome ſign of ammendment after eight or ten days; and if carefully followed from that time, the cure will be perfected in ſome weeks more.

It is a diſeaſe that is apt to return, and the patient muſt therefore watch the firſt approaches;

proaches; and have recourſe to the ſame medicines again. He muſt carefully avoid all accidents that may occaſion it: he muſt never face a ſtrong light, read a ſmall print, nor ſeal a letter.

CHAP. XV.

Of a gutta ſerena.

THIS is another of the diſeaſes of the Eye, which bring on abſolute blindneſs. It is in ſome degree of the nature of the glaucoma; which is a palſy in a ſlighter kind, attended with an alteration of the cryſtalline humour of the Eye. This is a palſy of a more inveterate ſort, which needs no other diſorder joined with it, to deſtroy the ſight. No blindneſs is more perfect, than that of a confirmed gutta ſerena. But there is a leſſer degree of it, in which ſome power remains in the Eye; and the perſon can diſtinguiſh light and dark; and ſee certain objects.

Whatſoever can obſtruct the nerves of the Eye, may be the cauſe of a gutta ſerena. Sometimes this diſorder proceeds from the matter of a fever, thrown at the criſis or turn of the diſeaſe upon theſe nerves; ſometimes the venereal diſeaſe occaſions it; and it is then incurable: the matter of that diſtemper not only

only obſtructing the nerves, but deſtroying their power of motion irrecoverably.

When a gutta ſerena attacks both Eyes, it may be known by the pupil being always the ſame; for the iris, or circle of the Eye, is incapable of motion: ſometimes it is contracted, as if the perſon was expoſed to a ſtrong light; and ſometimes dilated, as in thoſe who are in the dark. In either caſe it is incapable of being alter'd; and the perſon is equally blind, in one, and in the other.

Sometimes one of the Eyes is attacked firſt by this diſeaſe; and nothing can be perceived on looking at them, both ſeeming equally well, though one is abſolutely ſightleſs. In this caſe the following eaſy experiment ſhews the nature of the diſeaſe. Let the Eye which has its ſight be ſhut, and the pupil of the diſtemper'd Eye will dilate itſelf, as if that alſo were ſhut. Then let the other Eye be opened; and as the pupil of that contracts itſelf, ſo will that of the other.

This is owing to the ſtructure of the parts. The diſtempered Eye, in this caſe, has no power of motion in itſelf, but owes theſe changes to the other.

Sometimes a gutta ſerena comes on at once in both Eyes, and the perſon is ſtruck blind

in a moment; without pain, or any other previous diſorder. This is the moſt terrible kind of all: and I am to confeſs frankly, that ſo far as I have ſeen, it ſeems to admit no relief.

More uſually the diſorder comes on gradually. A violent pain in the head is the firſt ſymptom; and a dulneſs of ſight follows. The pain, which is terrible at the firſt ſtroke, becomes by degrees leſs; and as that abates, the ſight decays. This is a ſtate in which remedies may be uſed, for till the ſight is utterly loſt, they may recover it.

Let the patient be blooded; and let the quantity be proportion'd to the fulneſs of the veſſels. If the pulſe ſhew it neceſſary, this muſt alſo be repeated at a few days diſtance: for nothing will take effect while the veſſels are loaded.

Take freſh root of aſſarabacca a dram, ſlice it thin, and pour upon it a quarter of a pint of boiling water; let it ſtand till cold, then ſtrain it off, and take it juſt warm'd, with a ſmall lump of ſugar. Let a large quantity of carduus tea be made; it will operate as a vomit, and ſhould be encouraged by large draughts of that liquor.

Every three days let this be repeated, till it has been taken four times: encreaſing the quantity of the root, a little each time.

Let

Let a ſeton be made in the back of the neck.

Take ſeeds of lovage an ounce, tops of clary an ounce and half, put them into a quart of brandy. Let them ſtand a week, then ſtrain off the tincture. Let a ſmall quantity of this be warmed twice a day, and the Eye held over the ſteam of it.

Let the patient avoid ſtrong light, live temperately, and of all things, take care not to catch cold.

Finally, let him take conſtantly the tincture of maſterwort, directed for the glaucoma. It is intended in that caſe to ſtrengthen the nerves, and that is as eſſential in the preſent diſorder.

CHAP. XVI.

Of the leſſer degree of the gutta ſerena.

THIS diſeaſe is in its moſt deplorable ſtate, a confirm'd palſy of the nerves of the Eye: but it is poſſible in reaſon, and we ſee it confirm'd by experience, that it may attack the patient in a leſſer degree: and impair, but not abſolutely deſtroy the ſight.

What we obſerve of this confirms the opinion which is received as to the real nature of the diſeaſe; and it is a conſiderable advantage toward the cure, to know certainly the cauſe of the diſorder.

Nervous complaints, when in an extream degree, will take away the ſight for a time; and the cauſe is the ſame as in the laſting gutta ſerena: only, as the occaſion is temporary which brings it on; when the fit is over the ſight will return. Among the number of ſad ſymptoms attending what are called nervous diſorders, this is one of the worſt: and no care can be too great to prevent its growing to a heighth; for it will then terminate in a confirm'd and incurable gutta ſerena. Of all medicines in this caſe, the beſt is powder of the bark of miſſletoe. It will prevent the Eyes from ſuffering from this cauſe, however, the other ſymptoms may be aggravated.

In ſome caſes a part only of the Eye is affected with that palſy which occaſions this diſeaſe; and then the patient ſees only a part of any object that is preſented to him, not the whole: if a book be open'd he will ſee half the page, and not the reſt.

There is always a danger of this degree of the diſeaſe degenerating into the other; and the ſame methods muſt be uſed to prevent that, as to ſtop the progreſs of the worſt. There is the greateſt reaſon to obſerve the uſe of them ſtrictly, for the danger is imminent if they be neglected; and the hope of ſucceſs

on

on the other hand, is greater than in any other period or condition of the diſorder.

Sometimes the perſon diſtinguiſhes not only light from darkneſs, but the degrees of light from one another, as the light before and after ſunriſe, the brightneſs of noon, the fainter rays of afternoon, and the evening twilight. I have ſeen perſons thus affected who diſtinguiſhed theſe degrees of light, better than thoſe who had perfect ſight, becauſe they have leſs attention to them; and yet, with this degree of perception, theſe perſons could not ſee any object.

The remedies in this caſe muſt be the ſame as thoſe in the progreſs of the abſolute gutta ſerena; and they will take effect by timely uſe. In this, and in all other diſorders where the Eyes are concerned, one general rule may be laid down, that the firſt ſymptoms be regarded; for it is only in the earlier ſtage that they are curable by medicines; and that whenever this courſe is begun, it muſt be followed regularly and without interruption: for though the advance be ſlow toward a cure, it is important; ſince neglect gives the diſtemper time to ſtrengthen: and when confirm'd there is no remedy. The operation of couching ſeldom ſucceeds, and the alternative is, TIMELY CARE, or TOTAL BLINDNESS.

CHAP.

CHAP. XVII.

Of artificial Eyes.

TO the entire loſs of ſight, from the diſorders of which we have treated, there is often added a deformity of the Eye itſelf. Other cauſes beſides theſe will alſo totally and irrecoverably deſtroy the Eyes; and often render them at the ſame time protuberant, and otherwiſe unſightly. In this caſe when the power of ſight is utterly extinguiſhed, and the Eye is a diſguſtful object, there is ſome advantage in removing the deformity.

The globe of the Eye, with its pupil, and the circle, or iris, is a body eaſily imitated by art. Glaſs may be made to reſemble it in ſhape and lineaments: and when one Eye remains good, ſuch an artificial one may be let into the place of the other; and being made after the pattern of the entire Eye, no one can ſee the difference. It may alſo, by a careful operation, in caſes where the body of the Eye is not too much impair'd, be ſo let in as to be capable of motion.

This is in the power of art, and it may be done, and is done ſo perfectly, that many perſons have one of their Eyes glaſs, though their moſt intimate acquaintance have never perceived it: and I could inſtance, at this time, an officer

in

in the ſervice, who could not perſuade a perſon very near to him, that one of his Eyes was glaſs, any other way than by ſtriking againſt it with his finger-nail, and convincing the ear by the ſound.

This may be a great ſatisfaction to perſons who are to appear in publick; for the imperfection will be utterly imperceptible. But they muſt not ſuppoſe, becauſe this can be done, that every operator can perform it. The great care in the operation is to remove a proper quantity of the diſeaſed Eye, to make room for the artificial one: and yet to leave enough of the real globe remaining, to give motion to the glaſs covering which is to come over it. If too much of the real Eye be left, it will be impoſſible to fix the artificial one upon it: and on the contrary, if there be not ſome of it remaining, the artificial one cannot have much movement. The power of the muſcles of the Eye-lids will give it ſome motion; but this will not be like that attending the proper remains of the globe of the Eye.

In many caſes the Eye is deſtroyed by an abſceſs. The ſurgeon foreſeeing with cercertainty this terrible event, ſhould be preparing, from the time he finds the power of light is utterly loſt, for the remedying the deformity. To this purpoſe the ſuppuration

muſt

muſt be retarded ſo as to render it ſufficient to deſtroy about one third, or ſomewhat leſs of the globe of the Eye. After this let it heal in the uſual way; and there will remain enough of the natural Eye, to give motion to the artificial: and yet there will be a ſpace for that to be received.

When the ſight is irrecoverably loſt, and the Eye remains prominent, the humours muſt be let out by an inciſion, and the globe will thus fall to the proper dimenſions for receiving the artificial Eye; and yet there will be in the remainder a power of motion.

In either caſe a glaſs Eye muſt be made rounded in front, and hollow behind; exactly like the natural one; and large enough to fill the whole ſpace between the Eye-lids. This dimenſion muſt be carefully regarded, and there will then be no diſtinguiſhing the falſe Eye from the true.

F I N I S.